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January 24, 2014

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NW Natural
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sent via email only

Mr. Myron Burr
Siltronic Corporation
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Re: Response to Proposed Methods for the Substantial Product Accessibility Analysis, Gasco Sediments Site

Dear Sirs:

This letter serves as a response to the *Proposed Substantial Product Accessibility Analysis* dated October 3, 2013 for the Gasco Sediments Site which was prepared by Anchor QEA, LLC (Anchor QEA) on behalf of NW Natural and Siltronic Corporation (Siltronic). The *Proposed Substantial Product Accessibility Analysis* was submitted in response to the U.S. Environmental Protection Agency's (EPA's) requests for the next steps to address Action Items 3 and 4 as documented in an EPA letter dated August 30, 2013. The *Proposed Substantial Product Accessibility Analysis* provides EPA with a proposed approach for the evaluation of obstructed versus accessible substantial product. The intent of the *Proposed Substantial Product Accessibility Analysis* is to provide a numeric method within a tabular matrix to determine whether substantial product is "obstructed" or "accessible" due to the presence of individual structures or closely related sets of structures. The results of this analysis would be used to determine whether substantial product under or adjacent to these structures would be included for removal under relevant alternatives evaluated within the revised Engineering Evaluation/Cost Analysis (EE/CA). Anchor QEA proposed the criteria categories of function/permanence/lifespan, feasibility, nature and extent of substantial product adjacent to structure, and cost to be used in the analysis.

EPA's June 11, 2013 letter indicates that in meeting Remedial Action Objective (RAO) 1 it is expected that, "all accessible substantial product should be addressed as part of all alternatives and the differentiation between the combined alternatives would be the degree that obstructed substantial product would be addressed." EPA would like to clarify that results of the Substantial Product Accessibility Analysis will be incorporated into the EE/CA for purposes of developing remedial alternatives and meeting RAO 1. The evaluation will include determining the extent of obstructed substantial product to be addressed using in-place technologies for those alternatives that do not include removal of all substantial product.

EPA's August 30, 2013 letter states that the analysis should be standardized to result in clear and justifiable conclusions to substantiate a determination of "obstructed" substantial product. EPA generally accepts the proposed overarching methodology (i.e. a matrix approach using numerical scoring for each technical factor) for the Substantial Product Accessibility Analysis. However, EPA does not believe the specific numerical scoring approach as well as the description and evaluation of analysis technical factors as proposed by Anchor QEA provide an objective and transparent process which results in clear justifiable conclusions regarding determination of the accessibility of substantial product in relation to site

structures. The following paragraphs provide EPA's comments on the *Proposed Substantial Product Accessibility Analysis* as presented in Table 1 of the October 3, 2013 Anchor QEA letter. These comments should be addressed prior to use of the matrix for analysis of individual structures.

Specific Analysis Technical Factors[1] Comments
Recombine Specific Analysis Technical Factors Proposed for Separation by Anchor QEA

Anchor QEA proposed separation of some analysis technical factors identified by EPA within the August 30, 2013 response letter. It is unclear to EPA why the separation of these analysis technical factors was proposed, but EPA's perspective is that further subdividing analysis technical factors (especially in conjunction with the use of higher weighting factors) would not only further complicate the overall analysis but also has the potential to impart bias towards determinations of obstructed substantial product with respect to specific categories of structures. EPA requests that NW Natural/Siltronic recombine the following related analysis technical factors as indicated in the following bullets:

- Recombine the "Permanence…" and "Lifespan…" analysis technical factors included in the Function/Permanence/Lifespan Criteria Category. Also, for the combined "Permanence…" and "Lifespan…" analysis technical factors, EPA's opinion is that any mention of operations should be excluded from the description because the "Function…" analysis technical factor already incorporates the function of the structure relative to critical operations.

- Recombine the "…slope instability" and "…unacceptable vibration" analysis technical factors included in the Feasibility Criteria Category. For additional comments on the "…slope instability" and "…unacceptable vibration" analysis technical factors, refer to the paragraph titled "Include Use of a 'Zero' Score for Relevant Technical Analysis Factors."

- Recombine the "Cost of permanent relocation…" included in the Cost Category with "Feasibility of permanent relocation…" included in the Feasibility Criteria Category, and recombine the "Cost of temporary measures…" included in the proposed Cost Criteria Category with "Feasibility of temporary measures…" included in the Feasibility Criteria Category. For additional direction on how to address cost in the analysis, refer to the paragraph titled "Exclude "Cost" Analysis Criteria Category"

Exclude Analysis Technical Factors Proposed for Inclusion by Anchor QEA
Anchor QEA proposed two additional analysis technical factors for consideration by EPA in the analysis. One of those proposed factors is "Degree of coordination with multiple parties ....". Coordination with multiple parties necessary for ongoing business operations should not be considered a technical factor in the *Proposed Substantial Product Accessibility Analysis* because it is not relevant to determining whether substantial product removal is accessible or obstructed by structures. Thus EPA requests that this proposed analysis factor be excluded from use in the Substantial Product Accessibility Analysis.

Include "Degree of Substantial Product" Analysis Technical Factor
The current scoring evaluation within the "Nature/Extent of Substantial Product Adjacent to Structure" criteria category solely evaluates presence of substantial product within a specified distance that could cause adverse impacts to a structure. EPA's perspective is that factors related to adverse impacts are already addressed in the analysis as part of factors within the "feasibility" criteria category.

[1] Due to the length of the titles for the analysis technical factors identified by Anchor QEA, they are identified within this response letter using abbreviated titles as presented in Attachment 1 (enclosed).

EPA's intent in the August 30, 2013 response letter for proposing a criteria category related to "extent" of substantial product in the vicinity of a structure causing an accessibility issue is to allow an objective and reasonable determination of whether the long-term environmental benefits of substantial product removal to achieve compliance with RAO 1 are outweighed by the difficulties of accessing it and the potential adverse impacts caused to the environment and the structure potentially causing an obstruction if the substantial product were to be removed. For example, there could be a relatively minimal amount of substantial product in the vicinity of a structure which scores high in the "function/permanence/lifespan" and "feasibility" categories indicating significant difficulties in removal and adverse impacts to the structure which could result in a determination of obstructed substantial product. The converse could be true for a different structure in which the benefits of removing a significant quantity of substantial product could outweigh the adverse impacts to the structure if it were protected, temporarily or permanently relocated, or removed/replaced and thus result in a determination of accessible substantial product. In short, the degree of substantial product underneath and adjacent to the structure would put into context the function/permanence/lifespan of the structure and the feasibility of substantial product removal to achieve RAO 1 as a result of protection, relocation, or removal/replacement of a structure.

EPA requests that a qualitative assessment of the "degree of substantial product" that would be addressed underneath and adjacent to a structure should be represented by a new analysis technical factor within the "Nature/Extent of Substantial Product Adjacent to Structure" criteria category to compliment the "horizontal/vertical extent…" factor. Since there is an inverse relationship for this factor between the degree of substantial product present and the determination that an obstruction outweighs the benefit of removal, the scoring should be arranged inversely as well (i.e. the score increases for progressively smaller quantities of substantial product underneath or adjacent to the structure).

Modify Existing Specific Analysis Technical Factor to Address Potential Engineering Measures

The *Proposed Substantial Product Accessibility Analysis* includes analysis technical factors involving "feasibility of permanent relocation…" and "feasibility of temporary measures…" of structures. However, engineering measures, such as but not limited to sheet piles, could potentially be implemented to allow substantial product removal to proceed without relocating the structure either temporarily or permanently. The "feasibility of temporary measures…" analysis technical factor description should include potential protection/stabilization of structures using engineering measures.

Clarify "Planned" Critical Operations within Function/Permanence/Lifespan Criteria Category

EPA identified the function of the structure relative to critical operations as an analysis technical factor in the August 30, 2013 response letter. However the consideration of "planned" critical operations was not identified. EPA's position is that function of the structure relative to "planned" critical operations should only be considered a factor in the *Proposed Substantial Product Accessibility Analysis* to the extent that significant substantive steps have already been undertaken to initiate the plan and thus make them relevant to current critical operations. An example would be initial construction of a component within a major structure currently used in critical operations that requires expansion in future phases. EPA's rationale for this position is that future planning for business operations can and often does change over time based on economic conditions outside of the purview of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) analysis, and that basing a decision of accessibility of substantial product on potential future operations that may or may not occur due to economic conditions is not appropriate.

Exclude "Cost" Analysis Criteria Category

EPA identified cost (as well as feasibility) as components of two analysis technical factors in the August 30, 2013 response letter. Anchor QEA subsequently proposed separation of these factors in their October 3, 2013 letter.

EPA's intent was not to evaluate cost as a separate factor but rather consider it in the context of overall

feasibility either to permanently relocate (including removal and replacement) structures to remove substantial product, or to use temporary measures to remove substantial product as a secondary line of evidence for making accessibility determinations. Costs are a reasonable consideration, but a simple cost score inappropriately simplifies what will no doubt be a complex cost benefit analysis for some of the structures. In addition, cost *per se* is not a factor in whether a structure is obstructing or not, but is a surrogate for the difficulty of recovering the substantial product associated with a structure which is why EPA originally proposed cost to be addressed as part of feasibility. EPA's perspective is that subdividing cost into two analysis technical factors within its own criteria category (especially in conjunction with the use of higher weighting factors) would not only further complicate the overall analysis but also has the potential to impart bias towards determinations of obstructed substantial product with respect to specific categories of structures.

EPA requests that the proposed "cost" criteria category be excluded from the Substantial Product Accessibility Analysis and that the factor of cost be recombined with factors associated with the Feasibility Category as indicated in the paragraph "Recombine Specific Analysis Technical Factors Proposed for Separation by Anchor QEA".

The evaluation of cost within the analysis technical factors of the "feasibility" criteria category should not replace the "Substantial Product Cost Disproportionate Analysis" in the EE/CA. The separate cost disproportionate analyses as part of the EE/CA should be completed for remedial alternatives that do not include the removal of all substantial product to evaluate whether the removal of substantial product is disproportionate to the degree of risk reduction to be attained as compared to other remedial options for the same material. The revised remedial alternative matrix submitted by NW Natural/Siltronic to EPA on July 17, 2013 for discussion purposes includes a basic explanation of the proposed "Substantial Product Cost Disproportionate Analysis." The evaluation of cost as a standalone criterion would be made for the various alternatives evaluated within the EE/CA in the context of the "Substantial Product Cost Disproportionate Analysis" as previously agreed to between EPA and NW Natural/Siltronic.

Specific Numerical Scoring Comments

Effects of Proposed Scoring System on Consistent Analysis of Various Structures

According to the *Proposed Substantial Product Accessibility Analysis,* the determination of whether substantial product adjacent to a structure or closely related set of structures is designated "obstructed" versus "accessible" would be based on a comparison of the summation of final weighted scores for each structure against a selected numeric threshold. In addition, Anchor QEA indicates that the numeric threshold to be used to determine substantial product accessibility/obstruction will also be determined following completion of the numeric scoring and associated rationales for each structure.

EPA's perspective is that it is not clear from review of the *Proposed Substantial Product Accessibility Analysis* that the analysis would be consistent for each structure, including but not limited to the weighting factors for the scoring of each analysis technical factor and the numeric threshold associated with the overall determination as to whether removal of substantial product is considered "obstructed" by a particular structure. EPA views consistency within the scoring system to be crucial for determination of the accessibility of substantial product in relation to site structures.

The weighting factors and numeric threshold for determining substantial product accessibility/obstruction are key variables that will likely determine the overall outcome of the evaluation for each structure, and thus affect the consistency and comparability of the analyses for various structures. Consequently, EPA requests that the weighting factors and numeric threshold values be reevaluated and revised as necessary to address the comments included in this response letter. To facilitate agreement on the proposed revisions to the numerical scoring approach with EPA, NW Natural and Siltronic should identify a limited number of the structures (i.e. 3 or 4) identified in Anchor QEA's October 3, 2013 letter that can be used as representative test cases for the purpose of concurrence on the weighting factors and threshold numeric

values before the formal analysis of any structure commences. The test cases should be selected to include differing types of structures so that EPA can understand whether the revised numerical scores and weighting factors as well as the proposed numeric threshold will provide consistency in the overall analysis of all structures.

Effects of Scoring Descriptions and Weighting Factors on Overall Analysis

Anchor QEA proposed a numerical scoring approach for each analysis technical factor that includes both a scoring description (possible scores from 1 to 3 depending on the description for the factor) as well as a weighting factor (again varies from 1 to 3 depending on the analysis technical factor). It is unclear to EPA why the concept of weighting factors was introduced, and how they were determined. As previously discussed within this response letter, the purpose of the Substantial Product Accessibility Analysis is to allow an objective and reasonable determination whether the long-term environmental benefits of substantial product removal to achieve compliance with RAO 1 are outweighed by the difficulties of accessing substantial product and the potential adverse impacts resulting from removing the substantial product. If the weighting factors do not balance the scoring evaluation between the criteria categories, the overall analysis has the potential to impart bias towards determinations of obstructed substantial product with respect to specific categories of structures.

Analysis technical factors associated with the following two overarching issues should have an even scoring distribution: 1) the difficulty in removing the substantial product without affecting the structure, for which there are currently four scoring factors; and 2) the consequences and difficulty of removing or replacing the structure, for which there are currently seven scoring factors. Due to the number of factors associated with each overarching issue, it appears that one issue may overwhelm the other with an overall effect of considerations for the structures overshadowing the objective of the analysis which is removal of substantial product to achieve RAO 1 except where not feasible. As previously discussed, the number of analysis technical factors will change based on previous comments regarding recombination so revision of the scoring approach should be undertaken after the recombination of analysis technical factors is performed.

EPA's perspective is that the use of weighting factors should be considered to balance the scoring between all criteria categories. However, the *Proposed Substantial Product Accessibility Analysis* presents weighting factors that potential introduce additional biasing. The lowest proposed weighting factors are associated with analysis of extent of substantial product and difficulty of access due to structure configuration. Higher proposed weighting factors are associated with analysis of the function of the structure, and feasibility/cost of permanent relocation/removal and replacement.

Specific examples regarding the numerical scoring approach that illustrate this concern include:

- Function of the structure relative to current and planned critical operations appears to be overrepresented in the scoring. The technical factor "function of the structure relative to current and planned critical operations" is assigned the highest weighting factor value (3). The importance of a structure to operations also appears in other analysis technical factors, including "permanence…", "lifespan…", "feasibility of permanent relocation or removal/replacement…", and "feasibility of using temporary measures…"

- Weighting factors appear to be high for criteria categories and analysis technical factors associated with existing structures and/or replacing, relocating, or removing structures. For example, a weighting factor of 3 (the highest) is assigned to any structure regardless of function or status. In addition, the proposed minimum score (including the weighting factor) for each of the "permanence…" and "lifespan…" analysis technical factors is "2". Based on EPA's understanding of the scoring process for the Function/Permanence/Lifespan Criteria Category, the

score for a structure that is not critical, not permanent, and near the end of its lifespan would be "7" out of a possible "21".

These examples suggest that scoring description and/or weighting factors should be further assessed and adjusted to address EPA's concern about balancing out scoring between the criteria categories as previously stated. EPA's perspective, aside from scoring, is that substantial product should generally be considered accessible in cases where either the structure is removable/replaceable or where the product is easily removed with minimal impacts to the structure (or both). Lack of accessibility (i.e. obstruction) should only be an issue when both the structure must remain in place and the product is difficult to remove without significantly impacting the structure.

Include Use of a "Zero" Score for Relevant Technical Analysis Factors

EPA's perspective is that the current proposed scoring system does not address situations in which one or more analysis technical factors may not be relevant to certain structures and thus scoring for those structures may be inadvertently biased towards a determination of obstruction of substantial product simply due to the application of the minimum score available.

For example, the proposed description of scoring for two of the analysis technical factors ("…slope instability" and "…unacceptable vibration") assumes that substantial product removal in all cases would cause some level of "adverse impacts" to every structure from slope instability and vibration. EPA's opinion as stated in the August 30, 2013 response letter is that impacts such as slope instability and vibration can vary depending on the method of removal and thus should be considered in an accessibility analysis for specific structures on a case by case basis. Under the current scoring approach (minimum score of "1") and with the weighting factors (i.e. "2"), every structure would have a cumulative minimum score of "4" for these two factors even if adverse impacts are non-existent or entirely avoidable. Inclusion of a score of "0" that could be considered for these two analysis technical factors would allow objective evaluation for structures where adverse impacts are not identified or justified.

Another example for this situation is scoring for the factor "consequent impacts to other related structures if primary subject structure is removed/replaced to access substantial product". If the removal or replacement of the structure to access substantial product does not affect other structures at all, the current scoring approach (including a weighting factor of "2") would result in a cumulative minimum score of "2" for this technical analysis factor.

These are just two examples where a non-zero score could potentially bias overall determination that a structure "obstructs" substantial product removal. Thus EPA requests that NW Natural/Siltronic include the use of a score of zero for factors that may not universally apply to all structures. EPA considers the two examples given as the analysis factors that should be considered for use of a zero score. It should be noted that while EPA would like to see a zero score available for consideration with all relevant technical analysis factors, the actual use of a score of zero would not be automatic but would be considered on a case-by-case basis for each structure.

Structures to be Excluded from Substantial Product Accessibility Analysis

EPA's August 30, 2013 response letter indicated that the Substantial Product Accessibility Analysis did not need to include structures that NW Natural/Siltronic deem not to be an obstruction to removal of substantial product, such as floating docks, smaller outfalls such as Gasco WR-107, and small storm drains. EPA also provided some specific examples of structures that would likely not be considered obstructions to removal of substantial product such as most subsurface utilities. However, the list of in-water and uplands structures included in Table 1 of the accessibility evaluation appears to include all structures potentially within the Gasco site regardless of whether they would truly pose an obstruction to substantial product removal.

In addition to the examples provided by EPA's August 30th letter, structures not part of current facility operations, that are derelict, or structures that can be easily removed, replaced, or realigned should be dropped from the Substantial Product Accessibility Analysis. Example structures that meet these exclusion criteria include, but are not limited to, the FAMM boom deployment slide, former dock timber pilings, and former upriver dock. If NW Natural/Siltronic elects to retain these structures for analysis, specific justification should be provided for each to do so. The upriver and downriver pile-supported catwalks and upriver Gasco dolphin should also be considered to determine whether they meet these exclusion criteria and if retained for analysis, sufficient technical justification to do so should be provided when submitting them for the Substantial Product Accessibility Analysis.
Anchor QEA identified a number of structures in upland areas distant from the contaminated in-water sediment and riverbank soils in Figure 1 and Table 1 of the *Proposed Substantial Product Accessibility Analysis*, including but not limited to the pre-treatment plants and treatment building for the hydraulic control and containment (HC&C) system. EPA's August 30th response letter states that these structures will not likely be considered as obstructions without substantial justification. Even so, it is not entirely clear why structures at such a significant distance from the riverbank in upland areas were identified as potentially obstructing removal of substantial product. Thus EPA requests that technical justification be included for individual structures or sets of closely related structures greater than approximately 150 feet horizontally upland from the top of bank when submitting them for the *Substantial Product Accessibility Analysis*.

Next Steps
According to the *Proposed Substantial Product Accessibility Analysis* letter, Anchor QEA will develop a written rationale for the numerical score applied to each cell in the matrix, propose weighting factors, and then submit the analysis to EPA for verification of the selected scores. As previously stated in this response, EPA requests the following from NW Natural/Siltronic for review:

- Submit a revised *Proposed Substantial Product Accessibility Analysis* matrix with revised analysis technical factors and scoring methodology that can be consistently applied to all structures analyzed pursuant to EPA's comments and points of clarification within this response letter.
- Provide a proposed threshold value to be consistently used for all analyses that would represent a determination of "obstructed" substantial product.
- Identify a limited number of structures that can be used as representative test cases (i.e. 3 or 4) for the purpose of further assessing the weighting factors and threshold numeric values. The types of structures selected for test cases should vary to allow adequate evaluation of the revised scoring system with respect to comparability to all structured analyzed.

EPA requests that the information indicated be submitted within 30 days. Upon receipt, EPA will determine whether the refined methodology, suggested test cases, and proposed threshold value for the *Proposed Substantial Product Accessibility Analysis* are acceptable prior to the first individual analysis of a structure submitted to EPA. As indicated in the August 30, 2013 letter from EPA, EPA cannot evaluate analyses for determination of structures as obstructions until the definition of "obstructed" is agreed to and concurrence can be made on the accessibility analysis process.

Please let me know if you would like to discuss this letter further, or have any questions or concerns at (206) 553-1220 or via email at sheldrake.sean@epa.gov.

Sincerely,

Sean Sheldrake, RPM

Enclosure: Table of Abbreviations for Analysis Technical Factor Titles

Cc:
Kristine Koch, EPA *via email only*
Chip Humphrey, EPA
Mark Ader, EPA
Dana Bayuk, ODEQ

Attachment 1
Table of Abbreviations for Analysis Technical Factor Titles in Table 1 of October 3, 2013 Anchor QEA letter

Criteria Category	Analysis Technical Factor	Abbreviated Title for Analysis Technical Factor
Function/Permanence/ Lifespan	Function of the structure relative to current and planned critical operations	"Function…"
	Permanence of the structure in its current condition	"Permanence…"
	Lifespan of the structure in its current condition	"Lifespan…"
Feasibility	Difficulty of substantial product access due to the configuration of a structure	"Difficulty of substantial product access…"
	Feasibility of permanent relocation or removal/replacement of a structure to access substantial product including operational impacts	"Feasibility of permanent relocation…"
	Feasibility of using temporary measures (such as temporary realignment or relocation of structures) to minimize impacts to a structure or operations during removal of substantial product	"Feasibility of using temporary measures…"
	Consequent impacts to other related structures if primary subject structure removed/replaced to access substantial product	"Consequent impacts…"
	Degree of coordination with multiple parties necessary for ongoing business operations	"Degree of coordination**…"**
	Adverse impacts that could result from disturbance of a structure due to slope instability	"…slope instability"
	Adverse impacts that could result from disturbance of a structure due to unacceptable vibration	"…unacceptable vibration"
Nature/Extent of Substantial Product Adjacent to Structure	In-water and upland horizontal and vertical extent of substantial product in the vicinity of a structure causing an accessibility issue	"…extent of substantial product…"
Cost	Cost of permanent relocation or removal/replacement of a structure to access substantial	"Cost of permanent relocation…"

	product	
	Cost of using temporary measures (such as temporary realignment or relocation of structures) to minimize impacts to a structure or operations during removal of substantial product	"Cost of using temporary measures…"